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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/571,246

12/05/2006

Joachim Rudhard

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EXAMINER

HUNG, MING HUNG

ART UNIT

PAPER NUMBER

2829

MAIL DATE

DELIVERY MODE

05/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/571,246	RUDHARD, JOACHIM	
	Examiner	Art Unit	
	Ming Hung Hung	2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/08/06, 11/12/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Examiner acknowledged that this application 10/571,246 filed on 12/05/06 claims the benefit of the foreign application DE 103 42 155.6 filed on 09/12/03.
2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.
3. Preliminary amendment filed on 03/08/06 has been entered into record. Claims 1-8 have been cancelled. Claims 9-18 are pending.

Information Disclosure Statement

4. The information disclosure statement filed 03/08/06 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because copies of the references listed under Other Documents were not submitted. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 9-14 and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Robinson et al. (US Patent No. 5,961,877, Applicant's admitted prior art, and Robinson hereinafter).

7. As to claims 9-14 and 16-17, Robinson discloses:

a method for producing at least one of (a) etched holes and (b) etched trenches of a component based on one of (c) silicon and (d) a layered silicon/insulator structure (Figs. 10-11; col. 4, lines 16-23), **the method comprising: providing at least one of a germanium-containing layer and a germanium layer (Si-Ge-C layer 101, Figs. 10A-C; Si-Ge-C layer 111, Figs. 11A-D) at a point at which or in whose surroundings an etching procedure is to be completed** (the Si-Ge-C layer 101 is provided in Fig. 10A/11A and the etching procedure is completed in the surroundings of the Si-Ge-C layer 101); **detecting at least one of germanium and germanium compounds during the etching procedure; and controlling the etching procedure as a function of the detection** (during the etching procedure from Figs. 10B-C; the etchant is “detecting” whether it has reached the Si-Ge-C layer 101 every moment during entire etching procedure, and the etching rate is controlled based on the

detection because the etching rates of the silicon substrate 102 and the Si-Ge-C layer 101 are different; col. 15, lines 10-24) **[claim 9];**

where the controlling includes interrupting the etching procedure (the etching procedure is interrupted, or slowed down, as shown in Fig. 10C and Fig. 11B; col. 15, lines 10-24) **[claim 10];**

where at least one of the germanium and germanium-containing layer is buried in a layered structure (Si-Ge-C layer 111 is buried in Figs. 11C-11D) **[claim 11];**

further comprising applying at least one of the germanium and germanium-containing layer to a back of a silicon wafer (silicon substrate 102, Fig. 10B) **[claim 12];**

further comprising removing at least one of the germanium and germanium-containing layer after completion of a etching procedure up to at least one of the germanium and germanium-containing layer (Figs. 11B-C) **[claim 13];**

where at least one of the germanium and germanium-containing layer is simultaneously used as a component functional layer (Si-Ge-C layer 101, Fig. 10C) **[claim 14];**

a diaphragm sensor unit comprising (Fig. 10C): **a substrate made of one of silicon and a layered silicon/insulator structure** (silicon substrate frame 105, Fig. 10C); **and a flat diaphragm for implementing a sensor element structure for a sensor** (Si-Ge-C layer 101, Fig. 10C), **where at least one of a germanium and**

germanium-containing layer (Si-Ge-C layer 101, Fig. 10C) **is situated in the layered structure** (Fig. 10C is a layered structure) **[claim 16];**

where the flat diaphragm contains germanium (Si-Ge-C layer 101, Fig. 10C) **[claim 17];**

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson in view of McMilin et al. (Patent No. 6,908,846 B2 and McMillin hereinafter).

10. As to claim 15, although Robinson discloses a substantial features of the claimed invention, it fails to disclose:

where the at least one of germanium and germanium compounds is detected using one of optical emission spectroscopy and mass spectroscopy.

Nonetheless, this feature is well known in the art and would have been an obvious modification of the method disclosed by Robinson, as evidenced by McMillin.

McMillin discloses:

detection using one of optical emission spectroscopy and mass spectroscopy (col. 5, line 39-56).

Given the teaching of McMillin, a person having ordinary skills in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Robinson by employing the well known or conventional features of optical emission spectroscopy detection, such as disclosed by McMillin, in order to detect the germanium/germanium compounds or other materials when etching endpoint detection is desired.

11. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson in view of Wilner (US Patent No. 4,093,933).

12. As to claim 18, although Robinson discloses a substantial features of the claimed invention, it fails to disclose:

where the flat diaphragm is made entirely of germanium.

Nonetheless, this feature is well known in the art and would have been an obvious modification of the method disclosed by Robinson, as evidenced by Wilner.

Wilner discloses:

where the flat diaphragm is made entirely of germanium (col. 1, lines 29-47).

Given the teaching of Wilner, a person having ordinary skills in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Robinson by employing the well known or conventional features of

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germanium diaphragm, such as disclosed by Wilner, in order to avoid high hysteresis and corrosion, and have higher resonant frequency and gauge factors.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ming Hung Hung whose telephone number is (571) 270-3832. The examiner can normally be reached on Monday through Friday 7:30AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ha Nguyen can be reached on (571) 272-1678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ming Hung Hung/
Examiner, Art Unit 2829
04/30/08

/Tom Thomas/
Supervisory Patent Examiner,
TC 2800

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